

Interview Summary	Application No.	Applicant(s)	
	10/801,720	SHIGA ET AL.	
	Examiner	Art Unit	
	Stephan F. Willett	2142	

All participants (applicant, applicant's representative, PTO personnel):

(1) Stephan F. Willett. (3)_____.

(2) Carl Brundidge. (4)_____.

Date of Interview: 03, 28 August 2006.

Type: a) ☒ Telephonic b) ☐ Video Conference
c) ☐ Personal [copy given to: 1) ☐ applicant 2) ☐ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☒ No.
If Yes, brief description: _____.

Claim(s) discussed: All.

Identification of prior art discussed: Infante.

Agreement with respect to the claims f) ☒ was reached. g) ☐ was not reached. h) ☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Infante.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

Examiner's signature, if required

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: On 8/3 I called the representative to explain what was meant by ratio in relation to the prior art found. Based on our discussion, the representative agreed with my suggestion to the changes in the examiner's amendment to clarify ratio. On 8/28 I called the representative again and he said he had already faxed the previous amendment he believed, thus we discussed the Infante reference and some of its differences from the amended claims. The representative suggested a further amendment to further prosecution and I suggested he fax the second amendment also.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: K. SHIGA, et al

Serial No.: 10/801,720

Filed: March 17, 2004

For: PATH CONTROL METHOD

PROPOSED AMENDMENT**IN THE CLAIMS**

This listing of the claim will replace all prior versions and listings of claim in the present application.

Listing of Claims

1. (currently amended) A system comprising:

a first device;

a second device;

a plurality of paths which connect the first device and the second device; and

a third device which is connected to the first device,

wherein the first device transfers data to the second device using the plurality of paths at a predetermined ratio defining a weighting of an amount of communications to be allocated among the plurality of paths so that communication loads among the plurality of paths are balanced,

wherein the third device detects congestion of the plurality of paths and notifies the first device of the congestion, and

wherein the first device changes the predetermined ratio among the paths, thereby changing the weighting of an amount of communications to be

allocated among the plurality of paths, based on the basis of the notification to
transfer the data to the second device using the plurality of paths.

2. A system according to claim 1, wherein the first device and the second device are storage devices.

3. A system according to claim 1, wherein the first device is a computer, and the second device is a storage device.

4. A system according to claim 3, wherein each of the plurality of paths has a network device for connecting the first device and the second device,

wherein the third device is connected to the network device via a network, and

wherein the third device receives a notification of occurrence of congestion in the network device from the network device via the network.

5. A system according to claim 4, wherein the notification is a notification based upon SNMP Trap.

6. A system according to claim 2, wherein each of the plurality of paths has a network device for connecting the first device and the second device,

wherein the third device is connected to the network device via a network, and

wherein third device receives information on a discarded packet in the network device from the network device via the network and judges congestion of the plurality of paths based on ~~the basis of~~ the information on the discarded packet.

7. A system according to claim 6, wherein, in the case in which the number of discarded packets received from the network device is larger than the number of discarded packets received previously, the third device judges that congestion has occurred in the plurality of paths having the network device.

8. A system according to claim 1, wherein the third device has information on the predetermined ratio and a change rate of the predetermined ratio and, in the case in which congestion of the plurality of paths has been detected, computes the predetermined ratio among paths after change based on ~~the basis of~~ the change rate, and sends information on the predetermined ratio after change to the first device, and

wherein the first device transfers data to the second device using the plurality of paths on the basis of the received predetermined ratio among paths after change.

9. A system according to claim 8, wherein the third device detects recovery from congestion of the plurality of paths and sends information on the predetermined ratio among paths to the first device,

wherein the first device transfers data to the second device using a plurality of paths on the basis of the received predetermined ratio among paths.

10. A system comprising:

a first device;

a second device; and

a plurality of paths which connect the first device and the second device,

wherein the first device transfers data to the second device using the plurality of paths at a predetermined ratio defining a weighting of an amount of communications to be allocated among the plurality of paths so that communication loads among the plurality of paths are balanced,

wherein the first device detects congestion of the plurality of paths, and

wherein the first device changes the predetermined ratio among the paths, thereby changing the weighting of an amount of communications to be allocated among the plurality of paths, according to the detection of the congestion of the plurality of paths to transfer the data to the second device using the plurality of paths.

11. A system according to claim 10, wherein the first device and the second device are storage devices.

12. A system according to claim 10, wherein the first device is a computer, and the second device is a storage device.

13. A system according to claim 11, wherein each of the plurality of paths has a network device for connecting the first device and the second device,

wherein the first device receives a notification of occurrence of congestion in the network device from the network device via the plurality of paths.

14. A system according to claim 13, wherein the notification is a flag based upon ECN.

15. A system according to claim 12, wherein, in the case in which a response is not returned from the second device for a predetermined period, the first device judges that congestion has occurred in the plurality of paths.

16. A system according to claim 12, wherein, in the case in which an acknowledgement of the data sent to the second device has been received redundantly, the first device judges that congestion has occurred in the plurality of paths.

17. A system according to claim 10, wherein the first device has information on the predetermined ratio and a change rate of the predetermined ratio and, in the case in which congestion of the plurality of

paths has been detected, computes the predetermined ratio among paths after change on the basis of the change rate, and transfers data to the second device using the plurality of paths on the basis of the predetermined ratio among paths after change.

18. A system according to claim 17, wherein, when a data size, which can be sent to the plurality of paths in which the congestion has occurred, has exceeded a value set in advance after the congestion occurrence, the first device judges that the plurality of paths has recovered from the congestion.

19. A storage system comprising:

a control unit;

a disk device which is connected to the control unit; and

an interface which is connected to a network,

wherein the interface is connected to other devices by a plurality of paths in the network,

wherein the control unit sends data stored in the disk device as a packet to the other devices using the plurality of paths at a predetermined ratio among paths defining a weighting of an amount of communications to be allocated among the plurality of paths so that communication loads among the plurality of paths are balanced,

wherein, in the case in which an acknowledgement for the packet sent to the other devices has not been received for a fixed period, the control unit judges that congestion has occurred in the plurality of paths, and

wherein the control unit changes the predetermined ratio among paths, thereby changing the weighting of an amount of communications to be allocated among the plurality of paths, according to the occurrence of the congestion and performs packet transfer to the other devices at the changed ratio among paths.

20. A system comprising:

a first storage device;

a second storage device;

a plurality of paths which connects the first storage device and the second storage device; and


a computer which is connected to the first storage device,

wherein a switch is included in the plurality of paths,

wherein the first storage device transfers data to the second storage device using plurality of paths at a predetermined ratio defining a weighting of an amount of communications to be allocated among the plurality of paths so that communication loads among the plurality of paths are balanced,

wherein the computer detects congestion of a first path among the plurality of paths based on the basis of a notification from the switch and notifies the first storage device of the predetermined ratio after change,

wherein the first storage device changes the predetermined ratio among paths to the predetermined ratio after change, thereby changing the weighting of an amount of communications to be allocated among the plurality of paths, based on the basis of the notification and transfers data to the second storage device using the plurality of paths,



wherein the computer judges recovery from the congestion of the first path and notifies the first storage device of the predetermined ratio, and

wherein the first storage device changes the predetermined ratio among paths to the predetermined ratio and transfers data to the second storage device using the plurality of paths.